

Letter from John Ramsey Graham to Alexander Graham Bell, November 2, 1897

Scott Cummings, Attorney and Counselor at Law. 75 State Street, REMOVE TO 9 ELWOOD BLDG. Rochester, N. Y. Nov. 2, 1897 189 — Alexander Graham Bell, Esq., Boston, Mass/ Dear Sir:

Your report to the French Institute quoted in Prof. S. P. Langley's description in the June number of McClure's Magazine of his Aerodrome avows your belief in the possibility of aerial navigation. This in view of the popular prejudice the other way is encouraging to one who has made a study of the question in the belief that such navigation is practicable and that Prof. Langley has made a great stride toward it.

A friend in reading the article referred to said: If such a capitalist and man of enterprise as Alexander Graham Bell believes that Prof. Langley has solved the problem why does he not take hold of the idea and have a full size flying machine made that will carry people? To which I replied: It seems to me that while Prof. Langley's Aerodrome is a very great scientific achievement that it could not work upon a commercial scale because it is too much spread out and its wings especially would be too extended to be manageable or free from imminent danger of breakage in a machine large enough to carry even one person. It is not compact enough to stand bad weather, or to start or alight safely on a large scale, and is an evident commercial impracticability, and Mr. Bell is too practical a man not to see that a machine constructed on the Aerodrome pattern large enough to transport a few people and a load of dynamite shells for war purposes would be totally unmanageable except in favorable weather; that the plan is too fragile, and the starting and stopping too difficult to make a commercial possibility out of it.

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That is the way the Aerodrome looks to me, when it comes to building it on a large scale to contend with the elements and other difficulties of aerial navigation.

I mapped out in 1896 a plan of construction and operation of an air vessel or rather vehicle and have been studying it in order to find out why it is not a practical solution of the question, and the more I Contemplate and compare the plan the more practicable it seems. It is essentially different from any other within the scope of my information, is not copied after any other, and unless quite mistaken the mechanical part of the problem is solved by it leaving the question of necessary motive power and strength of the parts to be settled by actual experiment upon a large enough scale to parts pants to be settled by actual experiment upon a large enough scale to carry an engineer at least and travel a few hundred miles in any reasonable weather. This experiment and demonstration would cost probably several thousand dollars, not over \$5,000 as the limit.

No working model has been made— the plan hardly needs one to show how and why it would operate. It is a combination of wing, screw and aeroplane effects with steam or other motor never and at first and then to be dispensed with as far as possible if found not entirely unnecessary, balloon buoyancy, because the easiest, cheapest and quickest method of carrying on some experiments on a commercial scale as a practical test is to use balloon buoyancy at first and dispense with it gradually as the wing, aeroplane and screw effects are developed. That is the theory I have worked upon and it is more evolutionary than to jump at once into complete independence of such buoyancy. The successful air ship can come easiest through the successful dirigible balloon and Will most probably come that way.

It is wholly useless to present the case to the ordinary mind or to a confirmed skeptic on the subject. Its difficulties can hardly be overestimated, yet when one contemplates scores of other mechanical triumphs of this century it seems strange that aerial navigation is so farbehind. I think it is because the Bells and the Edisons have not focussed their

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inventive faculties upon it and when they do Tennyson's picture of aerial conflict will be realized , and your announcement that it is practicable be confirmed.

Very Truly Yours John R Graham